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10/754,917	01/09/2004	Paolo Pirjanian	EVOL.010A	8224

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EXAMINER	
BUKOWCZYK, JEREMY	
ART UNIT	**PAPER NUMBER**
3609	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/22/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/754,917	PIRJANIAN ET AL.	
	Examiner	Art Unit	
	Jeremy Bukowczyk	3609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 4/12/04; 9/30/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) is acknowledged.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 35-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The independent claim 35 and dependent claims 36-40 claim nonfunctional descriptive materials that are recorded on a plurality of cards and do not produce a tangible real world result. To be tangible the claim must recite more than a § 101 judicial exception, in that the process claim must set forth a practical application of that § 101 judicial exception to produce a real-world result. In this case a set of computer control cards does not produce a tangible result. The cards contain programming elements and therefore are descriptive material *per se* and are not statutory because they are not capable of causing function change in a computer. See *In re Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-5, 8, 12, 14-16, 19, 21, 23, 25, 27, 32, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen (4,613,942).

Chen discloses a method of programming a device, the method comprising: providing a plurality of card-like objects (col. 4, lines 32-33), where at least one surface of the card-like objects includes indicia (col. 3, line 2), wherein at least a portion of the indicia is machine readable and at least a portion is human recognizable (col. 4, lines 35-38); visually recognizing the indicia on at least some of the card-like objects using an image recognition process (col. 4, lines 42-44); associating the recognized indicia with one or more executable program instructions (col. 3, lines 29-32); and arranging the one or more executable program instructions to create at least a portion of a computer program (col. 4, lines 45-51).

As per claims 3-5, Chen discloses a digital camera to detect visual features of the card-like objects, where the camera views the card-like objects without touching the card-like objects is the equivalent of the camera (14), digital image processor (15), and computer (16) disclosed by Chen (as evidenced by The Free On-line Dictionary of Computing, see paragraph 6 of this Office Action). Chen discloses an optical scanner via scanning images (see Fig. 10B) to recognize the one or more card-like objects, where the optical scanner recognizes the one or more card-like objects without touching the objects as shown in figure 1 where a schematic view of the invention shows indicia being scanned from a distance. Chen discloses indicia that comprise of both graphical (75a-e and 77a-e) markings and textual (76a-e) symbols (col. 4, lines 40-44).

As per claim 8, Chen discloses a portion of a computer program that comprises at least one of a complete program, a macro, and a sub-routine (col. 2, lines 58-61).

As per claim 12, Chen discloses a method of programming a device, the method comprising: visually recognizing indicia that are visible on at least one surface of one or more planar objects, where at least one surface of the planar objects includes indicia, where at least a portion of the indicia is machine readable and at least a portion is human recognizable (col. 4, lines 35-38); automatically associating at least some of the recognized indicia with one or more executable program instructions (col. 3, lines 29-32); and arranging the one or more executable program instructions to create at least a portion of a computer program for the device (col. 4, lines 45-51).

As per claims 14-16, Chen discloses receiving data from a digital camera to detect visual features of the planar objects, where the camera views the planar objects without contacting the planar objects is the equivalent of the camera (14), digital image processor (15), and computer (16) disclosed by Chen (as evidenced by The Free On-line Dictionary of Computing, see paragraph 6 of this Office Action). Chen discloses an optical scanner via scanning images (see Fig. 10B) to recognize the one or more card-like objects, where the optical scanner recognizes the one or more card-like objects as shown in figure 1 where a schematic view of the invention shows indicia being scanned from a distance. Chen discloses indicia that comprise of both graphical (75a-e and 77a-e) markings and textual (76a-e) symbols (col. 4, lines 40-44).

As per claim 19, Chen discloses a portion of a computer program comprises at least one of a complete program, a macro, and a sub-routine (col. 2, lines 58-61).

As per claim 21, Chen discloses associating at least some of the recognized indicia with one or more commands, where the commands are related to control of a programming environment (col. 3, lines 29-32).

As per claim 23, Chen discloses a method of controlling a machine, the method comprising: visually observing indicia that are visible on at least a surface of an object, where the indicia are at least partially machine readable and at least partially human recognizable, where at least some of the indicia is associated with a desired behavior for the machine (col. 4, lines 35-38); associating the recognized indicia with corresponding behavior based at least in part on data retrieved from a data store (col. 3, lines 29-32); and controlling a behavior of the machine according to the recognized indicia (col. 4, lines 45-51).

As per claim 25, Chen discloses a card-like object (col. 4, lines 32-33).

As per claim 27, Chen discloses visually observing a plurality of indicia on a plurality of objects; associating the plurality of indicia with a plurality of desired behaviors; arranging the plurality of desired behaviors in an order according to a visually observed arrangement of the corresponding plurality of objects; and controlling the behavior of the machine according to the order (col. 4, lines 32-51).

As per claim 32, Chen discloses indicia that are machine readable and a portion of the indicia that are human recognizable are on a same surface of the object (col. 4, lines 40-44).

As per claim 34, Chen discloses a portion of the indicia that are human recognizable corresponds to one or more words written in plain text (76a-e).

5. Claims 35, 37, 38, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Luebbert (Communications of the ACM, Volume 7, Issue 12).

Luebbert discloses a plurality of cards with inherently visually-recognizable indicia that can be seen in the figures 1-4 as evidenced by mark-sense technology. In the article Luebbert discloses that the mark-sense cards in figures 1-4 are partially machine readable and are intended to be at least partially human recognizable, where the indicia are associated with at least one of computer commands and computer programming statements, where the associations between the visually-recognizable indicia and at least one of computer commands and computer programming statements are stored in a programming system. Luebbert inherently shows operators on the cards in figures 1-4 and provides a card with an arithmetic statement in figure 3. The cards displayed in figures 1-4 by Luebbert inherently show a plurality of cards with indicia associated with operators, flow control, actions for a computer, and command parameters to include arithmetic and comparison operators and flow control corresponding to at least one selected from a condition, a loop, and a break. Luebbert also inherently discloses a computer-readable tangible medium in the form of the cards in figures 1-4 with visual data corresponding to at least a machine-readable subset of the visually-observable indicia, and associations between the visual data and at least one of computer commands and computer programming statements.

6. A digital camera is a camera that captures and stores still images as digital data instead of on photographic film (digital camera. (n.d.). *The Free On-line Dictionary of Computing*. Retrieved February 01, 2007, from Dictionary.com website:

http://dictionary.reference.com/browse/digital camera). An optical scanner is a device that converts printed images and text into digital information that can be edited, transmitted, and stored (optical scanner. (n.d.). *The American Heritage® Science Dictionary*. Retrieved February 01, 2007, from Dictionary.com website: http://dictionary.reference.com/browse/optical scanner). The camera (14), digital image processor (15), and computer (16) disclosed by Chen is the equivalent of a digital camera and an optical scanner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2, 13, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (4,613,942).

Although Chen discloses all the claimed elements as mentioned in claims 1, 12, and 23, and Chen further discloses the use of a robot (col. 2, lines 61-64); Chen fails to disclose that the device that is controlled and programmed corresponds to a mobile robot.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of programming and controlling a robot of Chen to include mobility since it has been held that the fact that a claimed device is portable or movable is not sufficient by itself to patentably distinguish over an otherwise

old device unless there are new or unexpected results. *In re Lindberg*, 194 F.2d 732, 93 USPQ 23 (CCPA 1952).

9. Claims 6, 17, 20, 28, and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (4,613,942), in view of Lawton et al. (5,832,100).

Although Chen discloses all the claimed elements as mentioned in claims 1, 12, and 23, Chen fails to disclose the card-like objects being formed at least in part from paper, and the card-like objects are not affixed to other objects; Chen also fails to disclose that the portion that is machine readable and the portion that is human recognizable are the same; and Chen fails to disclose indicia that have been correctly identified by visually observing consistent data for indicia.

Lawton in the same field of invention discloses a method, wherein the card-like objects are formed at least in part from paper, and the card-like objects are not affixed to other objects (col. 3, lines 37-41). Lawton further discloses the portion that is machine readable and the portion that is human recognizable are the same (col. 8, lines 10-12) and verifying that the indicia have been correctly identified by visually observing consistent data for indicia (col. 8, lines 1-3).

From this teaching of Lawton, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of programming and controlling a device of Chen to include forming card-like objects at least in part from paper, not affixing the card-like object to other objects, having the same indicia being recognizable to human and machine, and verifying that the indicia have been correctly identified by visually observing consistent data for indicia as taught by Lawton in order

to convert information on paper documents into valid, computer-readable text (Lawton col. 3, lines 37-41).

10. Claims 7, 9, 10, 18, 26, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (4,613,942), in view of Luebbert (Communications of the ACM, Volume 7, Issue 12).

Although Chen discloses all the claimed elements as mentioned in claims 1, 12, and 23, Chen fails to disclose a card-like object corresponds to programming commands and tokens and not associated to a product code or contents of a product.

Luebbert in the same field of invention discloses a method, wherein a card-like object corresponds to at least one of a token card and a command card inherently shown in the programming cards in figures 1-4. Luebbert also inherently discloses in figure 3 associating the recognized indicia with one or more commands, where the commands control a programming environment and are not incorporated into an executable program and automatically executing the one or more associated commands to control the program as evidenced by the programming language Fortran that card is used the program a subset of. Luebbert also discloses in the article inherently in the cards in figures 1-4 commands and command parameters to at least partially control the behavior of a programming system machine. Further, Luebbert does not associate indicia with a product code and indicia are not associated with an identification of a content of an object.

From this teaching of Luebbert, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of

programming and controlling a device of Chen to include a method, wherein a card-like object corresponds to at least one of a token card and a command card that is not associated with a product or contents of a product as taught by Luebbert in order to have a simple, economical technique that cannot otherwise be achieved with multiple remote-processing inputs (Leubbert paragraph 5).

11. Claims 11 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (4,613,942), in view of Se et al. (The International Journal of Robotics Research, Vol. 21, No. 8).

Although Chen discloses all the claimed elements as mentioned in claims 1 and 12, Chen fails to disclose a method, wherein visually recognizing the indicia further comprises recognizing visual features that correspond to scale-invariant features (SIFT).

Se in the same field of invention discloses using SIFT for image feature generation in object recognition applications (section 2).

From this teaching of Se, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of programming a device of Chen to include the SIFT algorithm as taught by Se for the purpose of image feature generation in object recognition applications (Se section 2).

12. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (4,613,942), in view of Treiber (3,989,929).

Although Chen discloses all claimed elements as mentioned in claim 23, Chen fails to disclose a portion of indicia that are machine readable and a portion of indicia that are human recognizable are on different surfaces of an object.

Treiber in the same field of invention discloses an arrangement to locate a machine readable label on the bottom of a package and a human readable label on the top of a package (col. 2, lines 15-19).

From this teaching of Treiber, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of controlling a machine of Chen to include machine readable indicia and human readable indicia that are on different surfaces of an object as taught by Treiber in order to control a computing system (Treiber col. 2, lines 67-68 and col. 1, lines 1-14).

13. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luebbert (Communications of the ACM, Volume 7, Issue 12), in view of Wuschack (IBM Quality Assurance Operating Procedure, Book 1, Volume 03, Subject 109).

Although Luebbert discloses all claimed elements as mentioned in claim 35, Luebbert fails to disclose that computer control cards are fabricated from card stock.

Wuschack in the same field of invention discloses using card stock to produce data processing cards (1.1.1, page 1).

From this teaching of Wuschack, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a set of computer control cards of Luebbert to include fabricating computer control cards from card stock as taught by Wuschack in order to produce data processing cards (1.1.1, page 1).

14. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Luebbert (Communications of the ACM, Volume 7, Issue 12).

Although Luebbert discloses all claimed elements as mentioned in claim 35, Luebbert fails to disclose that the set of computer control cards have indicia that are associated with actions that correspond to control of a mobile device.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the set of computer control cards wherein the indicia associated with actions correspond to actions of Luebbert to include mobility since it has been held that the fact that a claimed device is portable or movable is not sufficient by itself to patentably distinguish over an otherwise old device unless there are new or unexpected results. *In re Lindberg*, 194 F.2d 732, 93 USPQ 23 (CCPA 1952).

15. Claims 41-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (4,613,942), in view of Lowe (US 6,711,293 B1).

Although Chen discloses a module with instructions configured to visually recognize indicia that are visible on at least one surface of one or more planar objects, where at least one surface of the planar objects includes indicia, where at least a portion of the indicia is machine readable and at least a portion is human recognizable (col. 4, lines 40-44); a module with instructions configured to automatically associate at least some of the recognized indicia with one or more executable program instructions (col. 3, lines 29-32); and a module with instructions configured to arrange the one or more executable program instructions to create at least a portion of a computer program (col. 4, lines 45-51); Chen further discloses the use of a robot (col. 2, lines 61-64). Chen

fails to disclose a computer program embodied in a tangible medium for controlling a device, instructions configured to visually recognize indicia using SIFT, and a circuit for controlling a device.

Lowe in the same field of invention discloses a computer program embodied in a tangible medium for controlling a device (col. 4, lines 39-42 and col. 4, lines 52-53), instructions configured to visually recognize indicia using SIFT (col. 1, lines 43-47), and a circuit for controlling a device (col. 2, lines 4-5).

From this teaching of Lowe, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a computer program of Chen to include a computer program embodied in a tangible medium for controlling a device, instructions configured to visually recognize indicia using SIFT, and a circuit for controlling a device as taught by Lowe in order to address the need for a computer vision system to identify scale invariant features in an image and a further method and apparatus using such scale invariant features to locate an object in an image (col. 1, lines 35-50).

The combination of Chen and Lowe fails to disclose the use of a mobile robot.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the robot of Chen to include mobility since it has been held that the fact that a claimed device is portable or movable is not sufficient by itself to patentably distinguish over an otherwise old device unless there are new or unexpected results. *In re Lindberg*, 194 F.2d 732, 93 USPQ 23 (CCPA 1952).

16. Although Applicant uses "means for" in the claim 47, it is the Examiner's position that the "means for" phrases do not invoke 35 U.S.C. §112 6th paragraph. If Applicant concurs, the Examiner respectfully requests Applicant to either amend the claims to remove all instances of "means for" from the claims, or to explicitly state on the record why 35 U.S.C. §112 6th paragraph should not be invoked.

Alternatively, if Applicant desires to invoke 35 U.S.C. §112 6th paragraph, the Examiner respectfully requests Applicant to expressly state their desire on the record. Upon receiving such express invocation of 35 U.S.C. §112 6th paragraph, the "means for" phrases will be interpreted as set forth in the *Supplemental Examination Guidelines for Determining the Applicability of 35 USC 112 6¶*. (Federal Register Vol. 65, No. 120, June 21, 2000.)

Failure by Applicant in their next response to address the 35 U.S.C. 112 6th paragraph issues in accordance with 37 C.F.R. §1.111(b) or to be non-responsive to this issue entirely will be considered a desire by Applicant *NOT* to invoke 35 U.S.C. §112 6th paragraph. Unless expressly noted otherwise by the Examiner, the preceding discussion on 35 U.S.C. §112 6th paragraph applies to all examined claims currently pending.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lowe discloses object recognition from Scale Invariant Feature Transform (SIFT). The Federal Election Commission discloses that mark-sense systems are often referred to as "optical scan" and that mark-sense technology is only

one of several methods for recognizing marks on paper through optical reading techniques.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Bukowczyk whose telephone number is 571-270-3022. The examiner can normally be reached on Mon-Thu 6:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynda Jasmin can be reached on 571-270-3033. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jb

LYNDA JASMIN 2/15/07
SUPERVISORY PATENT EXAMINER